

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 November 2001 (22.11.2001)

PCT

(10) International Publication Number
WO 01/088598 A3

(51) International Patent Classification⁷: G02B 27/22, H04N 13/00

(21) International Application Number: PCT/HU01/00057

(22) International Filing Date: 18 May 2001 (18.05.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
P 0001974 19 May 2000 (19.05.2000) HU
P 0101027 9 March 2001 (09.03.2001) HU

(71) Applicant and

(72) Inventor: BALOGH, Tibor [HU/HU]; Ady Endre út 3a., H-1192 Budapest (HU).

(74) Agent: S.B.G. & K. PATENT AND LAW OFFICES; Andrassy út 113., H-1062 Budapest (HU).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

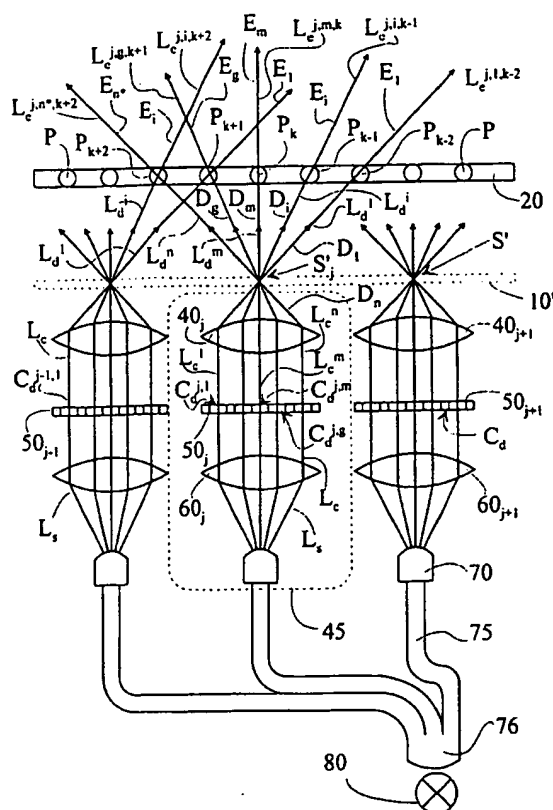
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DISPLAYING 3D IMAGES



(57) Abstract: The invention relates to a method for displaying three-dimensional images. In the method light beams (L_e) are associated to several different screen points (P) of a screen (20). The light beams (L_e) produce different views associated to different emission directions (E). The emission directions (E) are associated to the individual screen points (P). The light beams (L_e) are generated by projecting light beams (L_d), according to the angle of the adjacent emitting directions. According to the invention, light beams (L_e) without viewing direction information are generated, essentially simultaneously, with pixels (C_d) having different co-ordinates. These pixels (C_d) are pixels of a two-dimension display (50), and they are associated to different emitting directions (E) of the appropriate screen points (P). The light beams (L_e) produced by the pixels (C_d) of the display (50) with different co-ordinates are imaged simultaneously in different deflection directions (D), as a function of the co-ordinates of the pixels (C_d) producing the light beams (L_e). The subject of the invention is an apparatus implementing the above method.

WO 01/088598 A3

WO 01/088598 A3



(88) Date of publication of the international search report:
22 August 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/HU 01/00057

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G02B27/22 H04N13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G02B H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

WPI Data, EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 34411 A (SONY INT EUROP GMBH ;HOLOGRAFIKA (HU); BALOGH TIBOR (HU)) 6 August 1998 (1998-08-06) cited in the application abstract; figures	1-31
A	EP 1 008 887 A (DOMINGUEZ MONTES JUAN) 14 June 2000 (2000-06-14) abstract; figures & WO 98 33085 A (DOMINGUEZ MONTES JUAN) 30 July 1998 (1998-07-30)	1-31
A	WO 94 23541 A (BALOGH TIBOR) 13 October 1994 (1994-10-13) cited in the application abstract; figures	1-31
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *A* document member of the same patent family

Date of the actual completion of the international search

13 December 2001

Date of mailing of the international search report

20/12/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2260 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Ward, S

INTERNATIONAL SEARCH REPORT

International Application No
PCT/HU 01/00057

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EICHENLAUB J B ET AL: "An in cockpit situation awareness autostereoscopic avionics display" PROCEEDINGS OF THE SPIE, SPIE, BELLINGHAM, VA, US, no. 2219, 7 April 1998 (1998-04-07), pages 395-406, XP002079529 figures	1-31
A	US 4 717 949 A (EICHENLAUB JESSE B) 5 January 1988 (1988-01-05) abstract; figures	1-31
A	GB 2 272 597 A (SHARP KK) 18 May 1994 (1994-05-18) abstract; figure 3	1-31

INTERNATIONAL SEARCH REPORT

International Application No

PCT/HU 01/00057

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9834411	A	06-08-1998	HU 9700348 A1	28-12-1998
			AU 6224898 A	25-08-1998
			CA 2250968 A1	06-08-1998
			CN 1220807 A	23-06-1999
			CN 1220807 T	23-06-1999
			EP 0900501 A1	10-03-1999
			HU 0003613 A2	28-02-2001
			WO 9834411 A1	06-08-1998
			JP 2000509591 T	25-07-2000
			US 6201565 B1	13-03-2001
EP 1008887	A	14-06-2000	WO 9833085 A1	30-07-1998
			EP 1008887 A1	14-06-2000
WO 9423541	A	13-10-1994	WO 9423541 A1	13-10-1994
			AT 194048 T	15-07-2000
			AU 3903293 A	24-10-1994
			DE 69328906 D1	27-07-2000
			DE 69328906 T2	01-03-2001
			EP 0693244 A1	24-01-1996
			JP 8511134 T	19-11-1996
			US 5801761 A	01-09-1998
US 4717949	A	05-01-1988	EP 0316465 A1	24-05-1989
			IN 171989 A1	06-03-1993
			US 4795217 A	03-01-1989
			US 4829365 A	09-05-1989
			US 5036385 A	30-07-1991
			DE 3787970 D1	02-12-1993
			DE 3787970 T2	17-02-1994
GB 2272597	A	18-05-1994	NONE	